

CLAIMS

What is claimed:

1. A composition comprising:
a nucleic acid that binds to a blood clot or to a protein that is a component of a mammalian blood clotting cascade;
5 a protein complexed to said nucleic acid at either the 5' end or the 3' end or both.
2. The composition of claim 1, wherein said nucleic acid is derivatized at the 5' or 3' end or at both the 5' and 3' ends with a reagent specific for complexing said protein and said complex is formed by said reagent and said
5 protein.
3. The composition of claim 2, further comprising a linker that covalently attaches said reagent to said nucleic acid.
4. The composition of claim 2, wherein said reagent is biotin and said protein is streptavidin or a variant of streptavidin that retains biotin binding activity.
5. The composition of claim 3, wherein said reagent is biotin that is covalently attached to said linker and said protein complexed thereto is streptavidin or a variant of streptavidin that retains biotin binding activity.

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6. The composition of claim 1, wherein said protein is covalently attached to said nucleic acid through a linker.

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7. The composition of claim of any one of claims 1-6, wherein said nucleic acid is DNA, 2'-fluoropyrimidine RNA or 2'-aminopyrimidine RNA.

8. The composition of claim 7 wherein said nucleic acid is less than 50 nucleotides long.

9. The composition of claim 7 wherein said composition is further labeled with a radioactive label.

10. The composition of claim 9, wherein said radioactive label is ^{123}I , ^{124}I , ^{125}I , ^{131}I , $^{99\text{m}}\text{Tc}$, ^{186}Re , ^{188}Re , ^{64}Cu , ^{67}Cu , ^{212}Bi , ^{213}Bi , ^{67}Ga , ^{90}Y , ^{111}In , ^{18}F , ^3H , ^{14}C , ^{35}S or ^{32}P .

11. A method for imaging blood clots *in vivo* comprising intravenously administering to a subject the composition of claim 9 and imaging the emission from said radioactive label.

12. A method for preventing coagulation of blood in a subject requiring anticoagulation treatment comprising intravenously administering an amount of the composition of claim 7 effective to inhibit coagulation to said subject.

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13. A method for inhibiting degradation of a nucleic acid in the blood comprising complexing said nucleic acid at the 5' or 3' end or at both the 5' and 3' ends with a protein.

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14. The method of claim 13, wherein said nucleic acid is derivatized with biotin and said protein is streptavidin or a variant thereof that retains biotin binding activity.

15. The method of claim 12 or 13 wherein said nucleic acid is DNA, 2'-fluoropyrimidine RNA or 2'-aminopyrimidine RNA.

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